

REMARKS

Claims 10-22 are pending in the application. Claims 10, 14, and 18 have been amended. Support for the amendments to claims can be found in throughout the specification and original claims. See, for example, the specification at page 20, line 22, page 22, line 9, and page 23, lines 21-23, Figure 11, and claim 1 as originally filed.

Claims 10-22 were rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement.

The office action asserts that the claims contain “subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Although Applicants respectfully disagree with the position taken by the Examiner, claims 10, 14, and 18 have been amended to provide optical data recording medium in which the linear expansion coefficient of the protective film is greater than 9.5×10^{-5} ($1/^{\circ}\text{C}$) and smaller than 5.0×10^{-4} ($1/^{\circ}\text{C}$). Support for the amendment to claims 10, 14, and 18 can be found in claim 1 as originally presented, Figure 11, and in the specification at page 20, line 22, page 22, line 9 and page 23, lines 21-23. More particularly, as shown in Figure 5, when the linear expansion coefficient of the protective film 50 is 9.5×10^{-5} , the warp angle variation is as small as 1.3 mrad.

No new matter has been added by virtue of the amendments made to the claims.

Thus, claims 10-22 are fully compliant with the requirements of 35 U.S.C. §112, including the written description requirement of §112, first paragraph.

The present invention provides optical data recording medium which are resistant to deformation (e.g., warp) due to changes in temperature. More particularly, the present invention provides optical data recording media in which the expansion coefficient of the protective film

and the transparent substrate are regulated to prevent a bending force that can induce a warp or bend in the medium.

None of the prior art references alone or in combination teach or suggest preventing thermally induced deformation or warping of an optical media comprising a transparent substrate, a thin film layer formed on the transparent substrate and a protective film by regulating the linear expansion coefficient of the transparent substrate and the protective layer as specified in claim 10. More particularly, none of the cited documents teach or suggest preventing thermal deformation of an optical recording media by selecting the transparent substrate and the protective layer such that the linear expansion coefficient of the protective film is greater than 9.5×10^{-5} ($1/^{\circ}\text{C}$) and smaller than 5.0×10^{-4} ($1/^{\circ}\text{C}$) and that the protective layer has a larger linear expansion coefficient than the transparent substrate. Applicants have surprisingly discovered that selecting the materials used in the protective layer and the transparent substrate provide superior thermal stability and reduced medium deformation.

None of the references relied upon by the office action teach or suggest an optical data recording medium which possesses a linear expansion coefficient of the protective film is greater than that of the transparent substrate and is between 9.5×10^{-5} and 5.0×10^{-4} ($1/^{\circ}\text{C}$).

Claims 10-16 were rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Murakami (U.S. Patent 5,452,272).

The rejection is traversed.

As the document is understood, Murakami teaches an optical recording medium which uses a polyurethane acrylate resin overcoating. Murakami, et al. does not describe the expansion properties of any layer of the recited overcoating and more particularly does not teach or suggest controlling the warp or tilt of the optical recording media by modulating the linear expansion coefficient of one or more of the layers constituting the optical recording media.

As noted above, Murakami generically discloses an optical recording media having a polyurethane-acrylate overcoating, but fail to teach or even suggest use resins having specified linear expansion coefficient to prevent media deformation. More particularly, Murakami fails to teach or suggest dimensionally stable optical recording media can be fabricated by controlling the ratio and magnitude of the linear expansion coefficient of the protective layer and the transparent substrate as recited in claims 10, 14 and 18.

As the rejection is understood, the Examiner appears to take the position that all urethane, epoxy, polyester and polyether acrylates which can be used in optical recording media inherently possess linear expansion coefficient values specified in claim 1 of the instant application. Moreover, the Office Action appears to aver that because warping or tilting in the optical recording media is bad, that any prior art optical recording media which is designed to prevent warp or tilt caused by any stimulus automatically must also satisfy the claim limitations of the instant application.

Applicants respectfully disagree.

The Office Action has not provided any extrinsic evidence that the missing descriptive matter is necessarily present in the optical recording media of Murakami or that its presence would be so recognized by persons of ordinary skill. See, MPEP §2131.01, Heading III citing *Continental Can Co. USA v. Monsanto Co.* 20 USPQ2d 1746 (Fed. Cir. 1991).

The claimed invention provides that the material of the protective layer has a linear expansion coefficient value greater than that of the transparent substrate and that the linear expansion coefficient of the protective layer is between 9.5×10^{-5} and $5.0 \times 10^{-4}(1/^{\circ}\text{C})$. Moreover, as provided by the specification optical data recording media which satisfy the above requirements are particularly resistant to deformation or warpage caused by changes in temperature.

Although Applicants agree that urethane, epoxy, polyester or polyether acrylate materials are useful in the present invention, Applicant further required that each material used in the protective layer or the transparent substrate possess linear expansion coefficient values recited in claim 10. Thus, the instant invention contemplates fabrication of the transparent substrate and protective layer from materials such as urethane, epoxy, polyester or polyether acrylate materials (or polyolefin or polycarbonate) which possess the requisite linear expansion coefficient specified in claim 10.

Murakami neither discloses nor suggests imposing such a performance requirement on the materials used for the optical recording medium recited therein. Moreover, no evidence has been presented to show or establish that the protective layers or transparent substrates of the optical recording media of Murakami necessarily possess the linear expansion coefficients recited in claim 10, as currently amended.

For at least the reasons discussed herein, claims 10, 14, and 18 are patentable over the Murakami patent. Claims 11-13, 15-17, and 19-22 depend from claims 10, 14 or 18 and are therefore also patentable over the Murakami patent.

Claims 10-16 were rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Inuoue (U.S. Patent 4,590,493).

Claims 10-16 were rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Ohta (U.S. Patent 5,453,884).

Claims 10-16 were rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Yokoyama (U.S. Patent 5,714,222).

Claims 10-16 were rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Yoshioka (U.S. Patent 5,674,649).

Claims 10-16 were rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Tachibana (U.S. Patent 5,102,709).

Claims 10-22 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Murakami or Tachibana.

Each of the rejections is traversed

The cited documents do not teach or suggest Applicants' claimed invention in a manner sufficient to sustain a rejection under 35 U.S.C. §102 or §103.

As the office action is understood, each of the cited documents is relied upon because they allegedly teach an optical recording medium which uses a substrate and/or protective layer composed of an urethane, epoxy, polyester or polyether acrylate.

For example, Murakami, et al. discloses an optical recording medium which uses a polyurethane acrylate resin overcoating. Murakami, et al. does not describe the expansion properties of any layer of the recited overcoating and more particularly does not teach or suggest controlling the warp or tilt of the optical recording media by modulating the linear expansion coefficient of one or more of the layers constituting the optical recording media.

In contrast to the claims presented herein, the present invention is drawn to a novel optical recording media in which the linear expansion coefficient and/or Young's modulus of the substrate and the protective layer are modulated to prevent warp of the media. Applicants have surprisingly discovered that incorporation of a protective film having a linear expansion coefficient of between 9.5×10^{-5} (1/°C) and 5.0×10^{-4} (1/°C), which coefficient is greater than that of the transparent substrate. Thus, such optical recording media offer improved resistance to deformation or warp at various temperatures.

As noted above, Murakami et al. generically disclose an optical recording media having a polyurethane-acrylate overcoating, but fail to teach or even suggest use resins having specified linear expansion coefficient to prevent media deformation.

Moreover, none of the cited documents, taken alone or in combination teach or suggest optical recording media in which the substrate or protective layer has an linear expansion coefficient of between 9.5×10^{-5} ($1/^{\circ}\text{C}$) and 5.0×10^{-4} ($1/^{\circ}\text{C}$). Furthermore, none of the cited documents, taken alone or in combination, teach or suggest optical recording media in which the linear expansion coefficient of the protective film is greater than that of the transparent substrate.

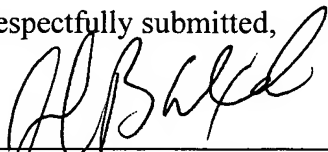
Accordingly, each of the rejections is properly withdrawn.

Reconsideration and allowance of claims 10-22 is respectfully requested in view of the foregoing discussion. This case is believed to be in condition for immediate allowance. Applicant respectfully requests early consideration and allowance of the subject application.

If for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge Deposit Account No. **04-1105**.

Should the Examiner wish to discuss any of the amendments and/or remarks made herein, the undersigned agent would appreciate the opportunity to do so.

Respectfully submitted,



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